



2631 SD

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF MAILING

Applicant: Alex Wayne Hietala

Serial No.: 09/879,806

Filed: 06/12/2001

For: **FRACTIONAL-N DIGITAL MODULATION WITH  
ANALOG IQ INTERFACE**

Art Unit: 2631

I HEREBY CERTIFY THAT THIS DOCUMENT IS  
BEING DEPOSITED WITH THE UNITED STATES  
POSTAL SERVICE AS FIRST-CLASS MAIL, IN AN  
ENVELOPE ADDRESSED TO: COMMISSIONER  
FOR PATENTS, WASHINGTON, D.C. 20231, ON

8/27/01 (Date of Deposit)

Jennifer Rush

Name of Depositor

Jennifer Rush

Signature

August 27, 2001

Date of Signature

Commissioner for Patents  
Washington, D.C. 20231

INFORMATION DISCLOSURE STATEMENT

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§1.56, 1.97 and 1.98, the Applicant  
requests consideration of this Information Disclosure Statement.

The Applicant hereby makes of record in the above-identified application the information  
listed on the attached form PTO 1449 (modified). The order of presentation of the references  
should not be construed as an indication of the importance of the references.

It is respectfully requested that:

1. The Examiner consider completely the cited information, along with any other  
information, in reaching a determination concerning the patentability of the present claims;
2. The enclosed form PTO 1449 be signed by the Examiner to evidence that the cited  
information has been fully considered by the Patent and Trademark Office during the  
examination of this application;
3. The citations for the information be printed on any patent which issues from this  
application.

RECEIVED  
AUG 31 2001  
Technology Center 2600

By submitting this Information Disclosure Statement, the Applicant makes no representation that a search has been performed, of the extent of any search performed, or that more relevant information does not exist.

By submitting this Information Disclosure Statement, the Applicant makes no representation that the information cited in the Statement is, or is considered to be, material to patentability as defined in 37 C.F.R. §1.56(b).

By submitting this Information Disclosure Statement, the Applicant makes no representation that the information cited in the Statement is, or is considered to be, in fact, prior art as defined by 35 U.S.C. §102.

Notwithstanding any statements by the Applicant, the Examiner is urged to form his own conclusions regarding the relevance of the cited information.

**The Director is hereby authorized to charge any fees that may be required, or credit any overpayment, to Deposit Account No. 50-1732.**

An early and favorable action is hereby requested.

Respectfully submitted,

WITHROW & TERRANOVA, P.L.L.C.

By:

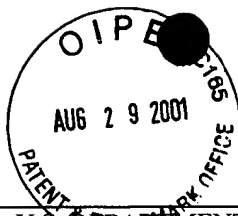


Benjamin S. Withrow  
Reg. No. 40,876

Customer No. 27820  
P.O. Box 1287  
Cary, NC 27512  
(919) 654-4520

Date: August 27, 2001  
Docket No. 2867-127

RECEIVED  
AUG 31 2001  
Technology Center 2600



FORM PTO-1449	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY DKT NO. 2867-127	SERIAL NO. 09/879,806
		APPLICANT Hietala	
		FILING DATE 06/12/2001	GROUP 2631
INFORMATION DISCLOSURE STATEMENT BY APPLICANT			

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NO.	DATE	NAME	CL.	SUBCL.	FILING DATE IF APPROP.
	N	5,068,875	11/1991	Quintin	375	78	
	O	5,070,310	12/1991	Hietala	331	1 A	
	P	5,079,522	01/1992	Owen	331	16	
	Q	5,093,632	03/1992	Hietala	331	1 A	
	R	5,111,162	05/1992	Hietala	332	127	
	S	5,166,642	11/1992	Hietala	331	1 A	
	T	5,281,865	01/1994	Yamashita	307	279	
	U	5,301,367	04/1994	Heinonen	455	76	
	V	5,337,024	08/1994	Collins	332	127	
	W	5,365,548	11/1994	Baker	375	62	
	X	5,493,700	02/1996	Hietala	455	75	
	Y	5,495,206	02/1996	Hietala	331	1 A	

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NO.	DATE	COUNTRY	CL.	SUBCL	TRANSLATION	
							YES	NO

## OTHER DOCUMENTS (Incl. Author, Title, Date, Pertinent pages, etc.)

	Z	Owen, David, "Fractional-N Synthesizers," IFR Application Note, IFR Americas, 2001, www.ifrsys.com
	AA	Pohjonen, H. and Ronkainen, H., "A 1 GHz CMOS Prescaler for RF Synthesizers," 1988 Proceedings of ISCAS, pages 377-380, CH2458-8/88/0000-0377.
	BB	Rogenmoser, R. et al., "1.57 GHz Asynchronous and 1.4 GHz Dual-Modulus 1.2 micrometer CMOS Prescalers," IEEE Customer Integrated Circuits Conference, 1994, pages 387-390, 0-7803-1886-2/94.

EXAMINER	DATE CONSIDERED
----------	-----------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



FORM PTO-1449	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY DKT NO. 2867-127	SERIAL NO. 09/879,806
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		APPLICANT Hietala	
		FILING DATE 06/12/2001	GROUP 2631

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NO.	DATE	NAME	CL.	SUBCL.	FILING DATE IF APPROP.
	RR	5,898,330	04/1999	Klass	327	210	
	SS	5,900,758	05/1999	Kanno	327	201	
	TT	5,917,355	06/1999	Klass	327	208	
	UU	5,920,556	07/1999	Jorgensen	370	350	
	VV	5,933,038	08/1999	Klass	327	208	
	WW	5,943,613	08/1999	Wendelrup	455	343	
	XX	6,008,703	12/1999	Perrott	332	100	
	YY	6,008,704	12/1999	Opsahl	332	127	
	ZZ	6,043,696	03/2000	Klass	327	211	
	AAA	6,060,927	05/2000	Lee	327	218	
	BBB	6,064,272	05/2000	Rhee	331	16	
	CCC	6,097,259	08/2000	Saito	332	103	

## FOREIGN PATENT DOCUMENTS

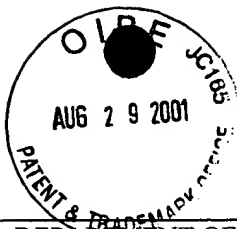
		DOCUMENT NO.	DATE	COUNTRY	CL.	SUBCL	TRANSLATION	
							YES	NO

## OTHER DOCUMENTS (Incl. Author, Title, Date, Pertinent pages, etc.)

	DDD	Razavi, Behzad, "RF Microelectronics," Prentice Hall PTR, Upper Saddle River, NJ, 1998.

EXAMINER	DATE CONSIDERED
----------	-----------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



FORM PTO-1449	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY DKT NO. 2867-127	SERIAL NO. 09/879,806
		APPLICANT Hietala	
		FILING DATE 06/12/2001	GROUP 2631
INFORMATION DISCLOSURE STATEMENT BY APPLICANT			

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NO.	DATE	NAME	CL.	SUBCL.	FILING DATE IF APPROP.
	CC	5,552,738	09/1996	Ko	327	203	
	DD	5,592,114	01/1997	Wu	327	208	
	EE	5,684,795	11/1997	Daniel	370	347	
	FF	5,745,848	04/1998	Robin	455	296	
	GG	5,777,521	07/1998	Gillig	331	16	
	HH	5,778,028	07/1998	Turner	375	229	
	II	5,822,366	10/1998	Rapeli	375	219	
	JJ	5,825,257	10/1998	Klymyshyn	332	100	
	KK	5,857,004	01/1999	Abe	375	344	
	LL	5,859,890	01/1999	Shurboff	377	48	
	MM	5,883,930	03/1999	Fukushi	375	376	
	NN	5,892,385	04/1999	Hashiguchi	327	333	

## FOREIGN PATENT DOCUMENTS

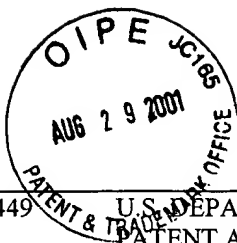
		DOCUMENT NO.	DATE	COUNTRY	CL.	SUBCL	TRANSLATION	
							YES	NO

## OTHER DOCUMENTS (Incl. Author, Title, Date, Pertinent pages, etc.)

	OO	Yang, Ching-Yuan, and Liu, Shen-Iuan, "Fast-Switching Frequency Synthesizer with a Discriminator-Aided Phase Detector," IEEE Journal of Solid-State Circuits, Vol. 35, No. 10, October 2000, pages 1445-1452, 0018-9200/00.
	PP	Yuan, Jiren, and Svensson, Christer, "High-Speed CMOS Circuit Technique," IEEE Journal of Solid-State Circuits, Vol. 24, No. 1, February 1989, pages 62-70, 0018-9200/89.
	QQ	Yuan, Jiren and Svensson, Christer, "New Single-Clock CMOS Latches and Flipflops with Improved Speed and Power Savings," IEEE Journal of Solid-State Circuits, Vol. 32, No. 1, January 1997, pages 62-69, 0018-9200/97.

EXAMINER	DATE CONSIDERED
----------	-----------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



FORM PTO-1449	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY DKT NO. 2867-127	SERIAL NO. 09/879,806
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		APPLICANT Hietala	
		FILING DATE 06/12/2001	GROUP 2631

**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NO.	DATE	NAME	CL.	SUBCL.	FILING DATE IF APPROP.
	A	4,609,881	09/1986	Wells	331	1 A	
	B	4,920,282	04/1990	Muraoka	307	442	
	C	4,953,187	08/1990	Herold	337	48	
	D	4,965,531	10/1990	Riley	331	1 A	
	E	4,991,187	02/1991	Herold	337	48	
	F	5,022,054	06/1991	Wang	375	64	
	G	5,038,117	08/1991	Miller	331	16	
	H	5,055,800	10/1991	Black	331	1 A	
	I	5,055,802	10/1991	Hietala	331	16	
	J	5,058,427	10/1991	Brandt	73	384	

**RECEIVED**  
 AUG 31 2001  
 Technology Center 2600

**FOREIGN PATENT DOCUMENTS**

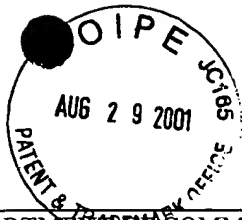
		DOCUMENT NO.	DATE	COUNTRY	CL.	SUBCL	TRANSLATION	
							YES	NO

**OTHER DOCUMENTS (Incl. Author, Title, Date, Pertinent pages, etc.)**

K	Chang, Byngsoo, et al. "A 1.2 GHz CMOS Dual-Modulus Prescaler Using New Dynamic D-Type Flip-Flops," IEEE Journal of Solid-State Circuits, Vol. 31, No. 5, May, 1996, pages 749-752.
L	Huang, Qiuting, and Rogenmoser, Robert, "Speed Optimization of Edge-Triggered CMOS Circuits for Gigahertz Single-Phase Clocks," IEEE Journal of Solid-State Circuits, Vol. 31, No. 3, March, 1996, pages 456-465.
M	Motorola Semiconductor Technical Data, "The Technique of Direct Programming by Using a Two-Modulus Prescaler," Originally printed May 1981, reformatted October 1995, Document no. AN827/D.

EXAMINER	DATE CONSIDERED
----------	-----------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



FORM PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY DKT NO. 2867-127		SERIAL NO. 09/879,806		
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				APPLICANT Hietala				
				FILING DATE 06/12/2001		GROUP 2631		
<b>U.S. PATENT DOCUMENTS</b>								
EXAMINER INITIAL		DOCUMENT NO.	DATE	NAME	CL.	SUBCL.	FILING DATE IF APPROP.	
	EEE	6,100,730	08/2000	Davis	327	117		
	FFF	6,121,807	09/2000	Klass	327	218		
	GGG	6,154,077	11/2000	Waible	327	185		
	HHH	6,163,710	12/2000	Blaser	455	552		
<b>FOREIGN PATENT DOCUMENTS</b>								
		DOCUMENT NO.	DATE	COUNTRY	CL.	SUBCL.	TRANSLATION	
							YES	NO
<b>OTHER DOCUMENTS (Incl. Author, Title, Date, Pertinent pages, etc.)</b>								
EXAMINER					DATE CONSIDERED			
EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.								

RECEIVED  
AUG 31 2001  
Technology Center 2600